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Electronic Data Interchange

Opportunities in Defense Procurement

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Executive Summary

ELECTRONIC DATA INTERCHANGE OPPORTUNITIES IN DEFENSE PROCUREMENT

The Department of Defense (DoD) procures $140 billion worth of goods and services annually through more than 13 million contract actions. Those contract actions eventually generate over 40 million receipt, invoice, and payment transactions. Many of those paper-based transactions can now be conducted electronically through the use of electronic data interchange (EDI) techniques. The results include sharply reduced processing costs and opportunities to apply new business practices that could lead to further improvements in DoD procurement.

We estimate that 46 percent of all future DoD procurement transactions will originate at 12 activities – 6 Defense Commissary Agency regional offices and 6 Defense Logistics Agency supply centers. If those 12 activities replace their paper-based procurement processes with electronic purchase orders, delivery orders, and modifications to both external suppliers and internal accounting, receiving, and payment offices, we estimate they will realize direct cost savings of $146 million over a 10-year period. Approximately two dozen installation-level procurement offices issue another 10 percent of DoD's procurement actions. Those offices are also excellent candidates for EDI, returning another $22 million in direct cost savings over 10 years.

Although DoD has over 1,300 procurement activities, only 240 issue more than 10,000 procurement actions per year. For those activities with less than 10,000 actions, the use of EDI may be limited. This is because approximately one-half of the procurement actions at a typical base-procurement activity are installation support services and construction contracts, neither of which is conducive to replacement by EDI transactions. Further, the low number of transactions at these activities are usually spread over numerous small local businesses that have limited EDI capability.

As a result of the substantial concentration of DoD procurement actions at just a few activities, we recommend that the DoD Executive Agent for Electronic Commerce and Electronic Data Interchange focus implementing EDI in procurement at six Defense Commissary Agency regional offices, six Defense Logistics Agency supply centers, one Navy inventory control point, and approximately two dozen large installation-level procurement offices. Those offices and centers have the types and volumes of procurement actions that are conducive to EDI as well as vendors that are well versed in EDI techniques.

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CHAPTER 1

INTRODUCTION

BACKGROUND

The Department of Defense (DoD) is undergoing significant change driven by world events, shrinking budgets, and pressure to reduce the cost of its acquisition, logistics, and financial processes. Information technologies are particularly important to DoD streamlining its business functions without degrading military capability.

One such technology is electronic data interchange (EDI), which is the computer-to-computer exchange of standard business documents such as purchase orders, invoices, and receiving reports by means of standard formats called transaction sets. Through EDI, businesses can exchange information electronically and, thereby, eliminate data entry labor and the resultant input errors while reducing paper handling and postage costs. In the private sector, EDI is fueling business process innovations such as just-in-time inventory, direct-vendor delivery, and invoiceless payment that are dramatically reducing investment and operating costs. DoD seeks similar savings by creating a totally electronic business relationship with industry called Electronic Commerce.

The primary business relationship that DoD has with the private sector is in the area of procurement. Each year, DoD typically executes 13 million to 15 million contract actions for supplies and services valued at over $140 billion. In this context, a contract action is:[1]

> . . . any written action obligating or deobligating funds in connection with the purchasing, renting, leasing, or otherwise obtaining supplies, services, or construction. The term includes: preliminary contractual instruments: letter contracts; definitive contracts, including notices of award; purchase orders; BPA [blanket purchase agreement] calls; job orders; task orders; delivery orders; contingency orders; administrative notices; communication services authorizations (CSAs); production lists; priced exhibits; other orders under existing contracts; and contract modifications such as change

[1]Section 204.607-2, Defense FAR [Federal Acquisition Regulation] Supplement (DFARS).

orders or agreements, supplemental agreements, funding changes, option exercises, and notices of termination or cancellation.

Although procurement appears to offer the most significant EDI opportunity for DoD, little is known about what types of contracting actions are conducive to EDI and which procuring activities have the necessary contract document volume to justify implementation.[2] Further DoD knows very little about the capability of its contractors to exchange procurement information electronically.

ORGANIZATION OF REPORT

This report identifies the procuring activities and contract actions that justify DoD investments in EDI. Chapter 2 provides an overview of procurement, while Chapter 3 develops a baseline of future procurement activity drawing upon Fiscal Year 1990 (FY90) data. In Chapter 4, we discuss various DoD consolidation initiatives that affect our procurement baseline. Chapter 5 presents our detailed assessment of DoD's EDI opportunities by procuring activity and type of contract action. Chapter 6 concludes with an economic analysis of the savings and costs associated with EDI implementation at DoD's largest procurement activities.

Appendix A lists DoD's 50 largest procurement activities, and Appendix B presents the data used to estimate the direct cost savings from implementing EDI.

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[2]LMI Report DL001-06R1, *A Business Case for Electronic Commerce*, Thomas P. Hardcastle and Thomas W. Heard, September 1990, found that DoD issues more that 15 million contracts, delivery orders, and purchase orders annually.

CHAPTER 2

OVERVIEW OF DoD PROCUREMENT

Any assessment of the potential for applying EDI to DoD procurement must recognize the diverse environments in which DoD activities place contracts, the number of buying activities, the different commodities and services acquired, and the variety of contractors' automation capabilities. Clearly, not all buying activities have the appropriate volume, trading partners, and contract documents to warrant an investment in EDI.

This chapter describes how the Defense procurement function is organized, its authority and how that authority is delegated, the types of contract actions that it undertakes, and its methods and information flows.

CONTRACTING ACTIVITIES

The DoD is the largest contracting organization in the Federal Government, as measured by either the amount of money obligated or number of actions issued. The DoD processes and administers its contracts for supplies and services at over 1,300 contracting activities throughout the United States and overseas [251 Army, 245 Air Force, 640 Navy, and 37 Marine Corps activities; 175 Defense Logistics Agency (DLA) activities; including Defense Contract Management Command contract administration activities; and 22 miscellaneous DoD activities.][1] These figures exclude hundreds of small activities that order only small-dollar items from either BPAs or indefinite delivery contracts.[2]

Most contracting activities provide procurement support for the military activity on which they are located. Categorized as installation support, it generally entails local purchases of supplies and services to run the day-to-day operation of the activity. Installation support consists primarily of many small contracting activities, usually with limited contract authority. That authority is limited both by dollar

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[1]DFARS, Appendix N, Activity Address Numbers.

[2]For example, some medical clinics or hospitals are authorized to place orders against BPAs or indefinite delivery contracts established by regional contracting activities, DLA, or Department of Veteran Affairs, but they may not be listed as contracting activities in DFARS, Appendix N.

value (e.g., all contract actions must have a value less than $100,000) and commodity and service (e.g., the repair and maintenance of installation equipment and facilities, but generally not major capital improvements or construction). The Military Services have established a few regional contracting activities to consolidate individual activity requirements over a given dollar value into regional contracting centers. As an example, the Naval Regional Contracting Center Philadelphia, Pennsylvania, processes large-dollar value procurements for small Navy activities in the northeastern United States.

Other DoD contracting activities support their parent Military Service, DoD-wide requirements or, in some cases, all Federal Government requirements. For example, the Defense General Supply Center (DGSC), Richmond, Virginia, manages all items in Federal Supply Class 6240, Electric Lamps, and, consequently, it originates nearly all Federal Government light bulb procurements. DoD has also centralized its acquisition of specific major weapon systems or classes of weapon systems. For example, the U.S. Army Tank-Automotive Command manages the development and acquisition of most armored vehicles, tactical trucks, special purpose vehicles, and automotive systems and subsystems used by the Military Departments.

Finally, DoD uses a number of specialized procurement activities to buy a variety of commodities or services, when required by procurement regulations or technology. For example, DoD has centralized its procurement of automatic data processing equipment (ADPE) and services, major construction, and basic research procurements at specialized activities within each Military Department – Air Force Computer Acquisition Center, U.S. Army Corps of Engineers, and Office of Naval Research, respectively.

CONTRACTING AUTHORITY AND ITS DELEGATION

The head of each Federal agency is vested with the authority and responsibility to contract for authorized supplies and services. This authority permits agency heads to establish contracting activities and delegate to heads of those activities authority to contract.[3]

[3]FAR Subpart 1.6. – Contracting authority and responsibilities.

The Military Department and Defense agencies' implementation of procurement authority varies widely. The Army and Air Force have established contracting offices at each of their installations to support base activities and tenant units, while the Navy uses a two-tier structure that assigns small-dollar procurement authority to individual commands and larger or specialized actions to regional contracting centers. The Navy method of delegating contracting authority is in fact highly decentralized except for its high-dollar or specialized procurements.

CONTRACT ADMINISTRATION AND PAYMENT DELEGATION

Prior to DoD's recent consolidation and restructuring of various functional and commodity management responsibilities, the majority of its procurement actions were issued at the installation level. Because most of those procurements were valued at less than $25,000 with firm fixed prices and delivery schedules or performance within 90 days, the local procurement office also retained contract administration responsibility, and the local accounting and finance office made all payments.

Some DoD procurements require Government representatives to administer production surveillance, cost oversight, Government property management, or quality assurance at the contractor's facility. Whenever such contract administration functions are required, the Defense Contract Management Command is assigned overall responsibility for those procurements with all contract payments made by a Defense Finance and Accounting Service payment office.[4]

CONTRACTING ENVIRONMENTS

Although the majority of DoD's procurement actions and resulting administrative and payment actions are in support of installation contracting, numerous specialized contracting environments exist. They include:

- Installation support
- Central supply and services
- Weapon system acquisition

[4]See DFARS 42.205, Designation of the Paying Office.

- Specialized commodities or services
  - Fuels
  - Subsistence
  - Telecommunications services
  - Basic research
  - Construction
  - ADPE.

These contracting environments have differences that extend beyond the commodities or services. Installation support contracting is primarily small-dollar actions under FAR Part 13, *Small purchase and other simplified procedures,* that, for the most part, follow simplified signature and documentation procedures. On the other hand, major weapon system contracting uses formal source-selection procedures to solicit and evaluate voluminous written proposals, with contract performance accomplished over several years. Finally, construction contracting makes extensive use of bid bonds and design drawings, both of which are peculiar to construction procurements. In addition, the procurement of services generally entails written statements of work that are expressed in pages of text, while supply items typically include discrete details such as item description, part/stock number, quantity, delivery location, and delivery date.

CONTRACTING DOLLAR VALUES AND METHODS

Figure 2-1 shows that 98 percent of all DoD procurement actions in FY90 were less than $25,000 in obligations, yet accounted for only 10 percent (approximately $14 billion) of the total dollars obligated. The high-dollar procurements, which averaged $568,000 per action versus just over $1,000 per action for the small purchases, follow the complex competitive procedures for invitations for bids and requests for proposals required by the Competition in Contracting Act.

The installation support contracting activities typically make the low-dollar procurements following the simplified procedures of FAR Part 13. The high-dollar procurements tend to be made by major procurement activities, which specialize in a specific commodity or system and follow the more complex competitive procurement requirements of FAR Parts 14 and 15.

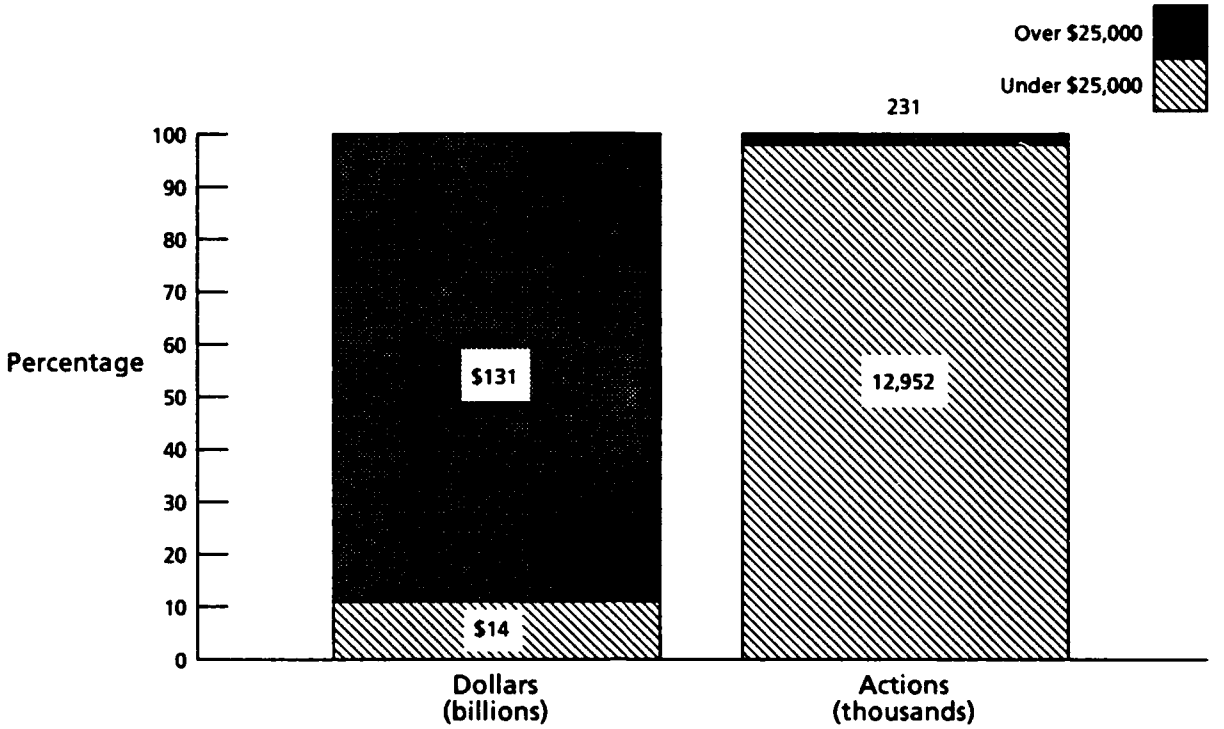

FIG. 2-1. DoD PROCUREMENT STATISTICS – FY90

TYPES OF CONTRACTORS

All small-purchase procurements with few exceptions are reserved ("set aside") for small businesses.[5] Consequently, small businesses obtain most of their contract awards and orders at values less than $25,000. In FY90, almost 7.5 million actions (67 percent of all DoD contract actions) were placed with small businesses.[6] With 98 percent of all contract actions valued less than $25,000, almost all of the 7.5 million small business actions must be less than $25,000. Furthermore, based upon the number of active Commercial and Government Entity (CAGE) codes,[7] slightly more than 300,000 firms have done business or confirmed an interest in doing business with DoD within the past 3 years.

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[5]FAR 13.105, Small business – small purchase set asides.

[6]Department of Defense, *Prime Contract Awards*, Washington Headquarters Services Report P03, 1990, Chart I.

[7]Defense Logistics Service Center, Commercial and Government Entity, *DoD Cataloguing Handbook H4/H8*, Battle Creek, Michigan, December 1991.

Some of DoD's small business contractors have an automation capability. For example, the Defense Personnel Support Center (DPSC) Medical Materiel Directorate reports that its largest volume EDI trading partner is a small business whose familiarity with EDI comes from the hospital supply industry, which routinely uses EDI to receive orders and submit invoices.[8] Other small businesses, especially those trading with DoD's installation support contracting offices, generally do not have similar capabilities.

CONTRACTING INFORMATION FLOWS

Figure 2-2 shows the typical information flows associated with issuance of a purchase or delivery order and the receipt and payment of goods or services. These flows apply generally to small purchase actions that are administered and paid locally.

Each of the information flows in Figure 2-2 is described below:

- *Purchase request* – The requiring activity (usually the supply office) states its requirement by submitting a purchase request that specifies a description of the item, estimated value, need date, priority, delivery point, and known sources, if any.
- *Solicitation/quotation* – The purchasing office solicits quotations from industry and receives quotations in response.
- *Order* – The purchasing office executes the purchase order (if the item was solicited) or delivery order (if the item is available on an indefinite quantity or delivery contract) and provides the contractor/vendor with a copy.
- *Obligation* – The purchasing office forwards a copy of the order to the accounting and finance office for recording the obligated amount against the appropriate account. The purchase/delivery order is filed for reference at voucher examination.
- *Status* – The purchasing office forwards a copy of the order to the requiring activity to document completion of the procurement action and to give notice when the item is scheduled for delivery or performance.
- *Due-in* – The purchasing office forwards a copy of the purchase/delivery order to the receiving office to notify it when the item is scheduled for delivery.

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[8]DPSC's largest medical EDI trading partner in FY91 was Clark Surgical Supply Corporation, Syosset, New York, with 6,562 actions.

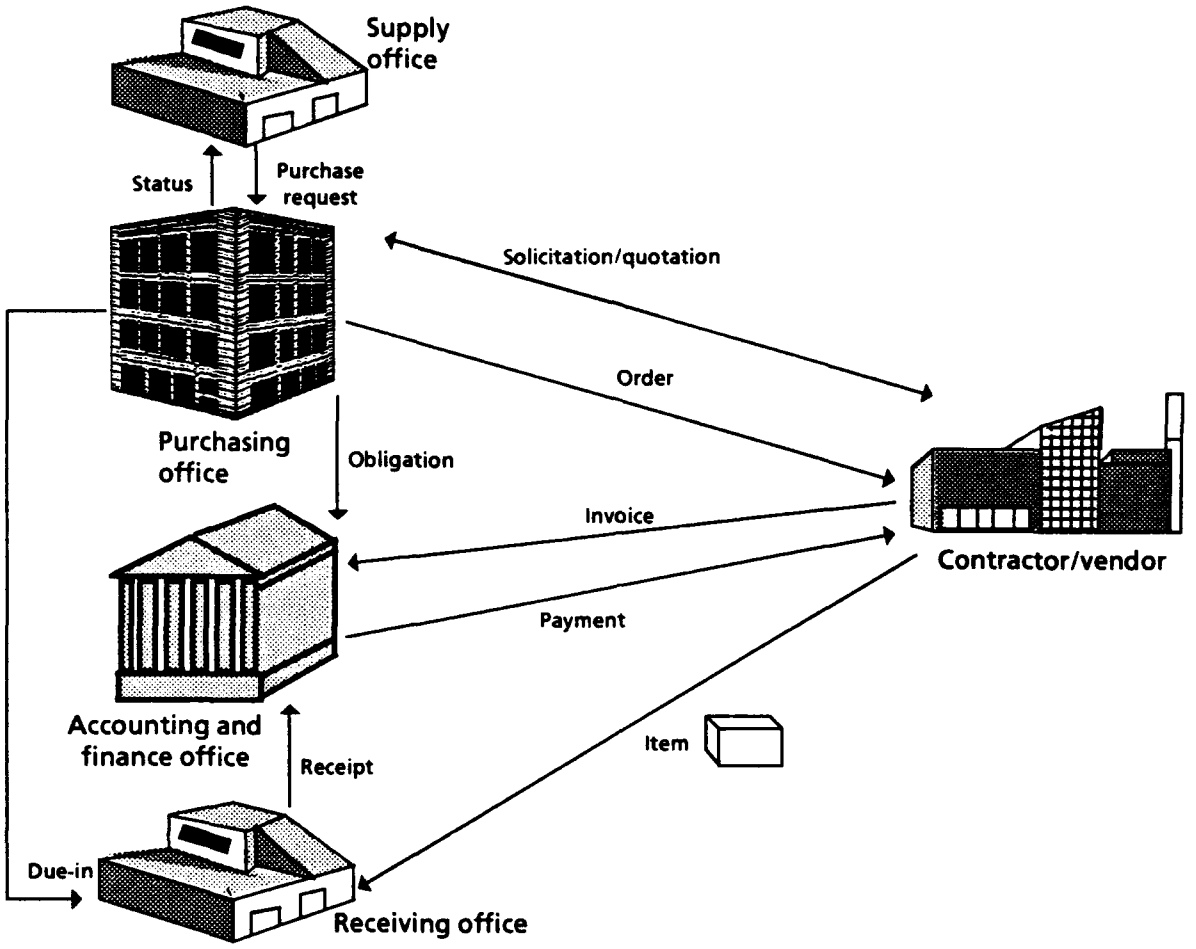
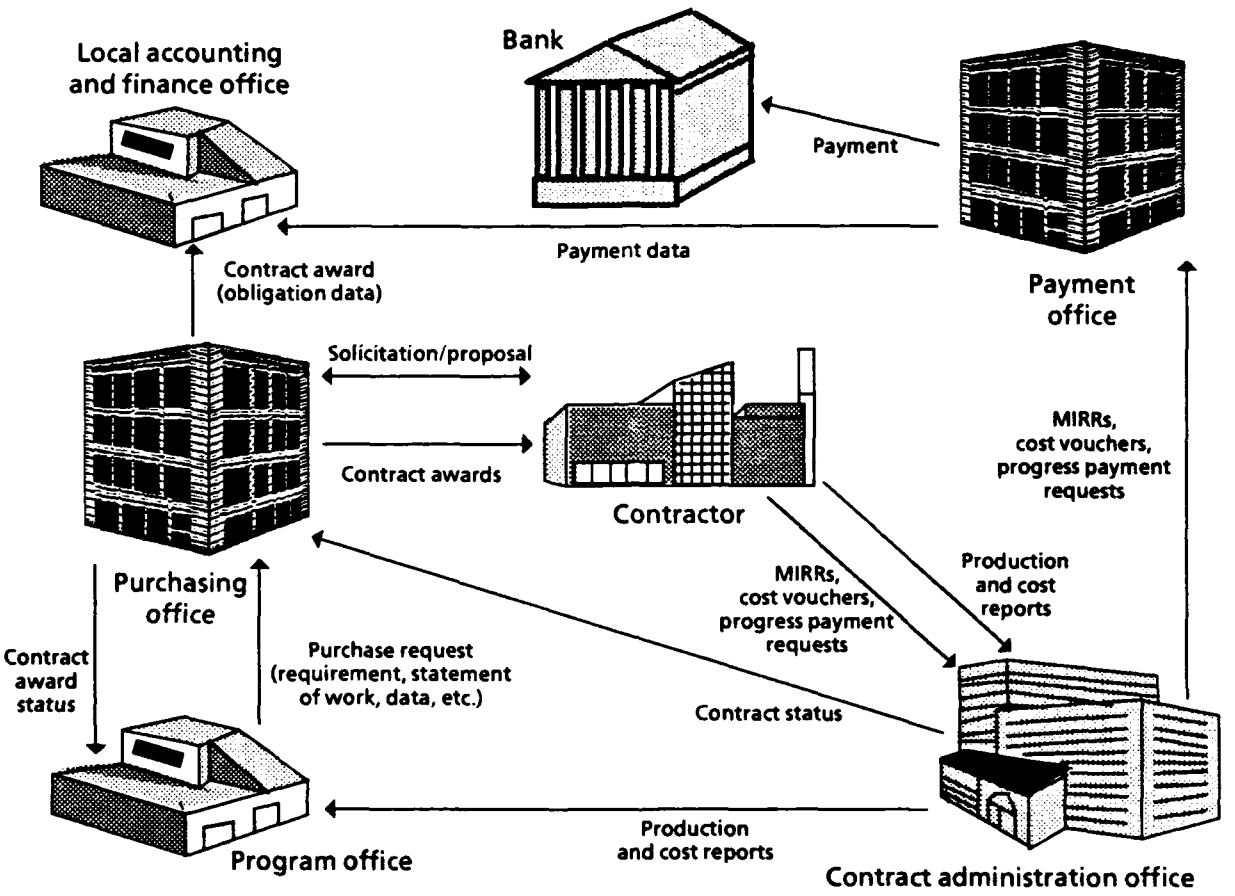


FIG. 2-2. INFORMATION FLOWS FOR SIMPLE PURCHASES

- *Invoice* – Upon completion of delivery or performance of the required item, the contractor/vendor either uses the invoice portion on the purchase/ delivery order form upon delivery of the item or submits a commercial invoice directly to the voucher examination section of the accounting and finance office.
- *Receipt* – The receiving office forwards a delivery ticket or completed receiving/acceptance section of the purchase/delivery order to the voucher examination section of the accounting and finance office.
- *Payment* – Following approval of the voucher, the disbursement section of the accounting and finance office pays the contractor by either issuing a check or using electronic funds transfer.

More complex information flows are created when contract administration and payment are delegated, as Figure 2-3 illustrates and as described below.



Note: MIRR = Material Inspection and Receiving Report.

FIG. 2-3. INFORMATION FLOWS FOR COMPLEX PURCHASES

- *Requirement* – The requiring activity (usually the program office) states its requirement by submitting to the purchasing office a purchase request that specifies a description of the item, estimated value, need date, priority, delivery point, and known sources. It may also provide a statement of work, contract data requirements list, and other specifications.
- *Solicitation/proposal* – The purchasing office solicits proposals from industry and receives proposals in response.
- *Contract award* – The purchasing office either executes the contract award (after proposal negotiation) or issues a delivery order (if the required item is available on an indefinite delivery/quantity contract) and provides a copy of the award/order to the contractor.

- *Obligation* – The purchasing office sends a copy of the contract award or order to the local accounting and finance office for recording of the obligated amount against the appropriate account. The contract award or delivery order is filed for future reconciliation purposes.

- *Status* – The purchasing office provides a copy of the contract award or order to the program office, which uses it to document completion of the procurement action and to update the status of deliveries and performance.

- *Material Inspection and Receiving Report* – The contractor submits a MIRR to the contract administration office's quality assurance representative for inspection and acceptance of supplies. Following acceptance, the MIRR is forwarded to the payment office for voucher examination.

- *Cost vouchers* – On cost-type contracts, the contractor submits a cost voucher to the contract administration office for certification of incurred costs under subject contract. The contract administration office, in turn, forwards certified vouchers to the payment office for voucher examination.

- *Progress payment requests* – If progress payments are authorized under a fixed price contract, the contractor submits a progress payment voucher to the contract administration office for certification of progress relative to costs incurred.

- *Production reports* – Major supply and systems contracts may require contractors to periodically submit production status or progress reports to the contract administration office, which then forwards them to the appropriate program and purchasing offices.

- *Cost reports* – If the item is procured under a cost-type contract, the contractor may be required to submit cost performance reports to the contract administration office, which then forwards them to the appropriate purchasing and program offices.

- *Payments* – Upon satisfactory voucher examination, the disbursement section of the payment office pays the contractor by either issuing a check or using electronic funds transfer.

- *Payment data* – The payment office provides disbursement data by contract and accounting classification to the local accounting and finance office.

CONTRACT DOCUMENTS

Defense procurement uses a variety of contractual instruments, most of which are standard forms, to convey information and document business arrangements. Table 2-1 shows the major procurement forms used by DoD; it also shows their EDI transaction equivalents.

TABLE 2-1

DoD PROCUREMENT AND CONTRACT ADMINISTRATION DOCUMENTS

Document type	Form	EDI transaction equivalent
Purchase order	DD Form 1155	ANSI 850, *Purchase Order*
Delivery order	DD Form 1155	ANSI 850, *Purchase Order*
Contract award	SF 26	Simple contracts – ANSI 850, *Purchase Order* Complex contracts – none
Request for quotations	SF 18	ANSI 840, *Request for Quotation*
Invitation for bids	SF 33	ANSI 840, *Request for Quotation*
Contract modification	SF 30	ANSI 860, *Purchase Order Change*
Solicitation amendment	SF 30	ANSI 840, *Request for Quotation*
Change order	SF 30	ANSI 860, *Purchase Order Change*
Progress payments request	SF 1443	ANSI 810, *Invoice*
Cost voucher	SF 1034	ANSI 810, *Invoice*
Production progress report	DD Form 375	ANSI 870, *Order Status Report*
Material Inspection and Receiving Report	DD Form 250	ANSI 856, *Shipping Notice* ANSI 861, *Receiving Advice*
Contract pricing proposal	SF 1411	ASC X12 805, *Contract Proposal*
Contract funds status	DD Form 1586	ASC X12 839, *Project Cost Reporting*

Notes: DD = Department of Defense; ANSI = American National Standards Institute; SF = standard form; ASC = Accredited Standards Committee of ANSI. ANSI transactions are approved and implemented; ASC X12 transactions are in development.

EDI PROCUREMENT APPLICATIONS

Several DoD procurement activities are currently pursuing EDI projects. Those projects range from electronically updating procurement data files while still relying on paper documents to entirely paperless procurements using ANSI standard transactions.

With its establishment on 1 October 1991, the Defense Commissary Agency (DeCA) acquired EDI projects from its predecessor commissary services, most notably the Marine Corps' system using Uniform Communications Standard transaction sets favored by the grocery industry.

The DLA has two major EDI undertakings. The largest, SAMMS [Standard Automated Material Management System] Procurement by Electronic Data Exchange (SPEDE), has several versions. One provides a request for quotations,

receives the quotations, and then issues purchase orders, all using EDI transactions. Another version permits electronic placement of delivery orders on indefinite delivery contracts. The second DLA EDI initiative is the Paperless Order Placement System (POPS) that places electronic orders directly with the supplier holding the long-term indefinite delivery contract. Table 2-2 shows that DLA, through SPEDE and POPS, is now issuing more than 30 percent of its procurement actions electronically.

TABLE 2-2

SPEDE AND POPS AWARDS: FOURTH QUARTER FY91

(Awards in 000s)

Actions	DCSC	DESC	DGSC	DISC	DPSC-Medical	DPSC-C+T	Total
Total	66.3	26.4	77.5	35.6	24.7	2.5	233.0
SPEDE awards	9.0	3.2	3.4	12.7	13.8	0.6	42.7
POPS awards	5.2	2.0	25.6	0	0	0	32.8
Total EDI	14.2	5.2	29.0	12.7	13.8	0.6	75.5
Percent EDI	21.4	19.7	37.4	35.7	55.9	24.0	32.4

Note: DCSC=Defense Construction Supply Center; DESC=Defense Electronic Supply Center; DGSC=Defense General Supply Center; DISC=Defense Industrial Supply Center; DPSC=Defense Personnel Support Center; C+T=clothing and textile.

Several Military Service inventory control points (ICPs) have also launched EDI ordering projects. The Naval Supply System Command's Aviation Supply Office (ASO) uses ANSI 850 Transaction Sets to transmit orders to major airframe, engine, and electronic contractors that manufacture spare parts for naval aircraft. ASO estimates that its 15 largest contractors receive 45 percent of the procurement actions, with the top 30 firms receiving 76 percent.[9] ASO's contractors include firms such as General Electric, Hughes Aircraft, McDonnell Douglas, and Allied Signal. Many of those firms were already experienced in using EDI to improve procurement as a result of their work with commercial airlines in ordering spare parts. Also, the

[9]Naval Supply Systems Command, "Strategic Plan for Electronic Data Interchange," November 1991.

Aerospace Industry Association and its member firms have worked closely with Military Service ICPs, such as ASO, in developing pilot EDI projects.

The DoD has two pilot projects under way that apply Electronic Commerce techniques to small purchases. Naval Supply Center Jacksonville, Florida, uses the Electronically Assisted Solicitation Exchange (EASE) to post SF 18, Request for Quotations, information on an electronic bulletin board for purposes of soliciting quotes from small businesses in its local trading area. In the future, the EASE project will be expanded to generate and receive EDI transaction sets that conform with DoD policy on standards for exchanging business documents electronically with industry. Also, the Government Acquisition Through Electronic Commerce project plans to use electronic request for quotations transactions to solicit thousands of vendors trading with Wright-Patterson Contracting Center in Dayton, Ohio.

Both of these pilot projects present a much more complex EDI trading partner relationship than either of DLA's applications because the typical installation neither issues large numbers of procurement actions nor concentrates its actions with a few businesses. For example, a typical installation might issue fewer than 10,000 actions per year (40 per business day), but those actions may be spread over more than 5,000 small vendors with the top 15 receiving only 10 percent of all actions. In addition, few local small businesses make extensive use of state-of-the-art automation techniques in daily operations.

SUMMARY

This chapter identifies a large and diverse Defense procurement environment that uses numerous documents and information flows to conduct its business. In the next chapter, we examine the issue of document volume in more detail and identify the DoD activities with the greatest volume.

CHAPTER 3

MEASURES OF PROCUREMENT ACTIVITY

The private sector has found that document volume is the primary indicator of where EDI offers the greatest return on investment. Drawing upon that experience, we examine in this chapter the number and types of contract actions that DoD uses and the activities that issue them. We begin with a brief discussion of the systems that DoD uses to report those actions.

PROCUREMENT ACTION REPORTING SYSTEMS

Although procurement managers at all levels collect information on the number, value, and type of procurement actions that they process, that information is not summarized across the DoD. Instead, DFARS requires each contracting office to report the number and value of procurement documents issued during a fiscal year that obligated appropriated funds. They report that information on DD Form 350, Individual Contract Action Report, for actions that obligate funds in excess of $25,000 and DD Form 1057, Summary of Contract Actions $25,000 or Less, for those that obligate smaller amounts. Eventually those data are accumulated for each Military Department and Defense agency and submitted to the Defense Contract Action Data System (DCADS), which prepares consolidated reports for the Federal Procurement Data Center.

The procurement information contained in DCADS reports is principally the output of the contract award or order issuance process, as illustrated in Figure 3-1. It does not include the number of documents related to the procurement, such as the number of purchase requests, or any solicitation documents, like the SF 18, Request for Quotations, and SF 33, Invitation for Bids. Those data are not available through DCADS.

Not only does DCADS fail to capture the full scope of DoD procurement but it also appears to undercount the number of procurement actions. For example, some of the Military Services report a significantly larger number of actions than others, not only in the aggregate, but also at comparable buying activities. In addition, remote offices routinely place small-dollar orders against indefinite delivery contracts or

Federal Supply Schedule independent of any central procurement office. Many of those orders are not reported. We estimate that DoD underreports its small-dollar procurement actions, using DD Form 1057, by at least 2 million actions per year.

In the balance of this chapter, we address the number and types of procurement actions that DoD issues each year. For DoD-wide summaries, we use data from DCADS reports even though those data contain serious shortfalls. (Nonetheless, we do inflate our out-year projections by 2 million actions to account for any underreporting.) When we identify DoD's largest procurement activities, we use departmental or agency data primarily because those data are more reliable for that purpose.

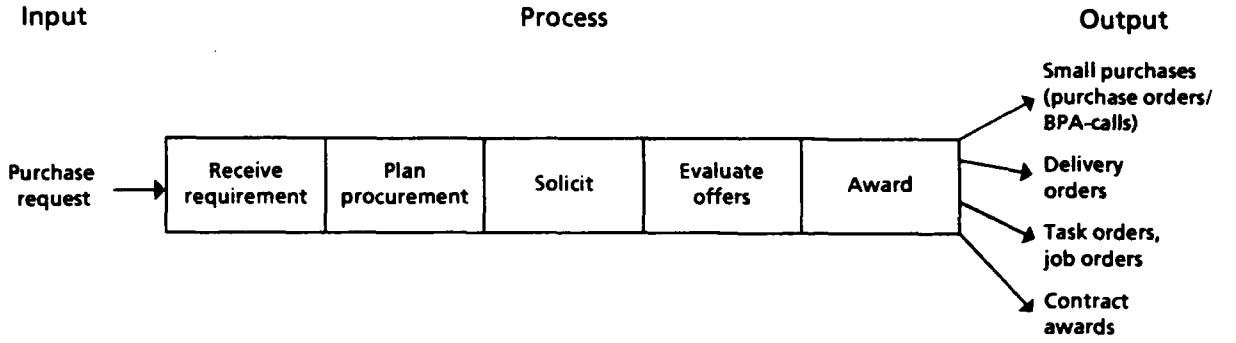


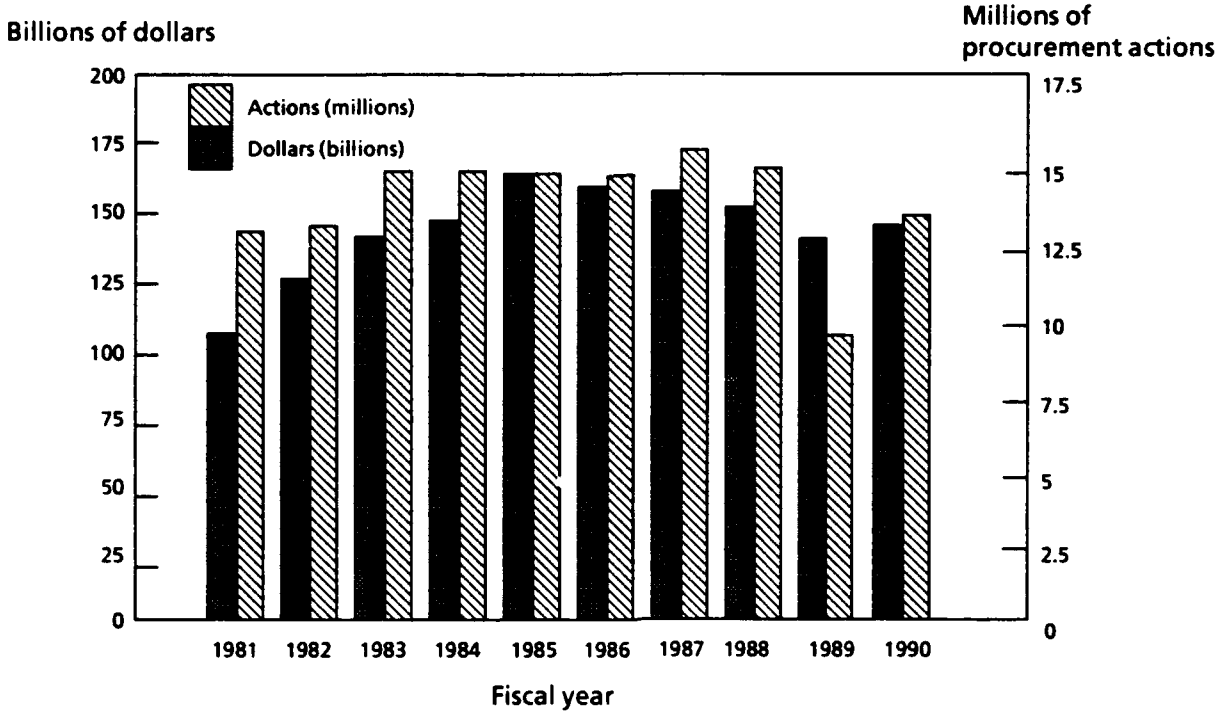
FIG. 3-1. PROCUREMENT PROCESS

HISTORICAL TRENDS

According to DoD's *Prime Contract Awards*, Report P03, DoD has generated more than 12.5 million procurement documents, valued in excess of $100 billion, annually since 1981 (see Figure 3-2). (Problems with new data reporting software caused DoD to undercount its procurement actions in FY89.) Even with a declining Defense budget, we believe that DoD will continue over the next few years to generate more than 12.5 million procurement actions.

FISCAL YEAR 1990 BASELINE

We further believe that DoD's procurement experience in FY90 provides a good baseline for estimating the number of procurement actions that it will process in the future. Table 3-1 breaks out FY90's 13 million procurement actions by Military Department and Defense agencies. The Air Force, with more than 5.7 million actions and nearly 44 percent of the DoD total, clearly processes the most.



Source: Department of Defense, *Prime Contract Awards*, Report P03, 1981 – 1990.

FIG. 3-2. DoD PROCUREMENT OBLIGATIONS AND ACTIONS: FY81 TO FY90

TABLE 3-1

DoD PROCUREMENT ACTIONS: FY90

Department/ agency	Number	Percent
Army	3,576,224	27.2
Navy	2,302,605	17.5
Air Force	5,708,499	43.5
DLA	1,122,062	8.5
Other[a]	438,637	3.3
Total	13,148,027	100.0

Source: Department of Defense, *Prime Contract Awards*, Report P03, 1989 - 1990, Table 16.

[a] Includes DoD procurements in support of nonmilitary matters, such as flood-control projects by the U.S. Army Corps of Engineers.

Approximately 42 percent of the 13 million transactions in FY90 occurred in three general areas – commissary supplies, medical supplies, and centrally managed supplies and services (such as spare parts and maintenance). As Table 3-2 illustrates, the procurement of commissary supplies dominates.

TABLE 3-2

FY90 PROCUREMENT ACTIONS: MAJOR SOURCES

Department/ agency	Total	Centrally managed supplies and services	Medical supplies	Subsistence/ commissary supplies	Subtotal	Percent of total
Army	3,576,224	46,717	600,000	1,054,168	1,700,885	47.6
Navy	2,302,605	80,429	300,000	25,000[a]	405,429	17.6
Air Force	5,708,499	55,332	300,000	2,100,000[b]	2,455,332	43.0
DLA	1,222,062	759,299	89,107	101,787	950,193	77.8
Other	438,637	–	–	–	–	–
Total	13,148,027	941,777	1,289,107	3,280,955[c]	5,511,839	41.9

[a] Navy commissary supply orders appear significantly underreported when compared to Air Force and Army statistics.

[b] Estimate based on DeCA figures of 2,295,000 and analysis of the 2,121,257 DD Form 1057 actions reported by Air Force Commissary regions as "Other Contracting Actions."

[c] In planning for assuming overall responsibility for commissary service in DoD, Headquarters, Defense Commissary Agency estimates that DoD processed more than 5.7 million commissary orders in FY90, not the 3.3 million shown.

Table 3-3 lists the 20-largest DoD procurement activities according to the number of small-dollar contract documents that each processed in FY90. As one would expect from the preceding table, many of the larger activities support commissary procurements.

The types of procurement documents that DoD issued in FY90 are shown in Table 3-4. Approximately 42 percent of the procurement actions were for small purchases, primarily purchase orders and calls/orders against BPAs. DoD also issued a significant number of job/task (29 percent) and delivery orders (28 percent). The number of large-dollar actions, primarily contract awards and modifications, were relatively insignificant (1 percent).

TABLE 3-3

DoD PROCUREMENT ACTIVITIES: FY90

(Number of small-dollar actions < $25,000)

Rank	Number	Activity/location	Type of procurement
1	553,290	AFCOMS Region, Maxwell AFB, AL	Commissary/ installation support
2	484,140	AFCOMS Region, Lackland AFB, TX	Commissary/ installation support
3	366,201	AFCOMS Region, Langley AFB, VA	Commissary/ installation support
4	335,293	TSA Region, Fort Lee, VA	Commissary
5	311,205	TSA Region, Fort Meade, MD	Commissary
6	257,048	DCSC, Columbus, OH	Central supply
7	252,884	TSA Region, Fort Sam Houston, TX	Commissary
8	252,015	AFCOMS Region, Norton AFB, CA	Commissary/ installation support
9	245,962	AFCOMS Region, Luke AFB, AZ	Commissary/ installation support
10	229,640	DGSC, Richmond, VA	Central supply
11	217,330	AFCOMS Region, Offutt AFB, NE	Commissary/ installation support
12	202,606	AFCOMS Region, McChord AFB, WA	Commissary/ installation support
13	169,447	Wright-Patterson Contracting Center, OH	Installation support
14	154,786	TSA Region, Fort Lewis, WA	Commissary
15	154,613	AF Development Test Center, Eglin AFB, FL	Installation support/ test range
16	143,851	DISC, Philadelphia, PA	Central supply
17	116,754	DESC, Dayton, OH	Central supply
18	103,612	7th Communications Group, Fort Ritchie, MD	Telecommunications/ installation support
19	97,864	AFCOMS Region, March AFB, CA	Commissary/ installation support
20	92,810	DPSC – Subsistence, Philadelphia, PA	Central supply

Note: AFCOMS = Air Force Commissary Service; AFB = Air Force Base; TSA = Troop Support Agency; DCSC = Defense Construction Supply Center; DGSC = Defense General Supply Center; AF = Air Force; DISC = Defense Industrial Supply Center; DESC = Defense Electronic Supply Center; DPSC = Defense Personnel Support Center.

TABLE 3-4

DoD PROCUREMENT ACTIONS BY TYPE: FY90

Type of action	Percent
Purchase orders and BPA orders	42
Delivery orders	28
Job/task orders and other small actions	29
Large contract awards	1

Source: Consolidated DD Form 1057 data.

We believe that delivery orders offer a very promising opportunity for EDI because they are used typically to order predetermined items under requirements or indefinite delivery/quantity type contracts. In addition, the discrete, definitive structure of delivery orders can easily be translated (or "mapped") into the appropriate EDI standard, the ANSI 850 Transaction Set, *Purchase Order*. Electronic delivery orders would also be relatively easy to implement because the conditions for such orders could be agreed to in advance by the contracting parties when they establish indefinite delivery contracts. Finally, DoD can learn from the experiences of the General Services Administration (GSA), which has developed electronic orders for its Federal Supply Schedule contracts and modified its regulations to accommodate electronic placement of delivery orders.[1]

SUMMARY

In this chapter, we identified the types and volumes of procurement actions by Military Service and DLA as well as general commodity groupings. We also identified those activities that generated the largest number of procurement actions in FY90. However, these numbers serve only as a starting point in our analysis to determine which DoD activities are the best candidates for EDI. This is because a number of structural changes have occurred in the DoD that will redistribute many of the procurement actions to new buying activities. In Chapter 4, we examine the potential impact of some of those changes.

[1]See GSA Acquisition Regulation Subpart 516.506, Indefinite-Delivery Contracts.

CHAPTER 4

CONSOLIDATIONS

The DoD has launched a series of consolidation initiatives that will have a long-term effect on the number of activities that procure supplies and services, administer the contracts, and pay the vendors. In this chapter, we briefly review the status of those initiatives in three areas (functional management, commodity management, and information processing) for purposes of assessing their impact on the number and types of procurement actions processed by DoD activities.

FUNCTIONAL MANAGEMENT

The DoD already has consolidated two key procurement responsibilities – contract administration and contract payment. In the former, the Defense Contract Management Command, reporting to the Director of DLA, is the newly created organization for managing all delegated contract administration functions in DoD. It includes the contract administration offices and management areas formerly under the Defense Contract Administration Service (DCAS) and all Navy Plant Representative Offices, Army Plant Representative Offices, and Air Force Plant Representative Offices.

In the area of contract payments, the Defense Finance and Accounting Service (DFAS) now manages all DoD finance centers. Its responsibility includes all contracts formerly paid by DCAS regions, DLA Finance Center, DLA supply centers, Air Force Contract Management Division, and the central finance centers of the Military Services. (DFAS has also announced its intent to centralize all installation support contract payments at its centers.)

COMMODITY MANAGEMENT

In the areas of medical and commissary supplies, the DoD either is planning or recently initiated major consolidations of procurement responsibility. For example, the Health Services Corporate Information Management (CIM) review is considering centralizing the procurement of most DoD medical supplies at the Medical Materiel

Directorate, DPSC. Current plans call for DPSC to buy at least 50 percent of the medical supplies required by local hospitals and bases.

In addition, the Jones Commission report recommended consolidating commissary management under a new organization – DeCA – and disestablishing the commissary services in the Army, Air Force, Marine Corps, and Navy.[1] DeCA, formally established on 1 October 1991, is responsible for procuring all commissary groceries and supplies throughout the DoD. Another change, which is related to the contract payment consolidation, is the requirement for DFAS–Columbus Center to pay all commissary vouchers, with DeCA responsible for all voucher examinations.

INFORMATION PROCESSING

Defense Management Report Decision 924, Automatic Data Processing Consolidation, directs the Military Services and Defense agencies to consolidate information processing centers within each Service/agency. As an example, the Air Force plans to create four regional computer centers – Gunter Air Force Base (AFB), Alabama; Kelly AFB, Texas; McClellan AFB, California; and Wright-Patterson AFB, Ohio – for processing procurement actions initiated by 160 buying offices scattered throughout the continental United States. The regional centers are scheduled for operation beginning in FY95.

Also, DLA plans to centralize its functional application processing at dedicated computer centers. DGSC, for example, will be the only center running the Standard Automated Material Management System (SAMMS), which means that all DLA inventory managers and buyers will be networked to DGSC, with all procurement transactions passing through DGSC's automation center.

CONSOLIDATION IMPACT

The overall result of these consolidation actions will be fewer buying activities and fewer computer centers that process procurement information. As illustrated in Figure 4-1, we estimate that approximately one-half of DoD's procurement actions will be in three commodity areas – commissary supplies, medical supplies, and spare

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[1]Office of the Secretary of Defense, *The Jones Commission – DoD Study of the Military Commissary System*, 18 December 1989.

parts. Not surprisingly, those are the same areas in which DoD is consolidating the management at DeCA, DPSC, and DLA hardware ICPs, respectively.

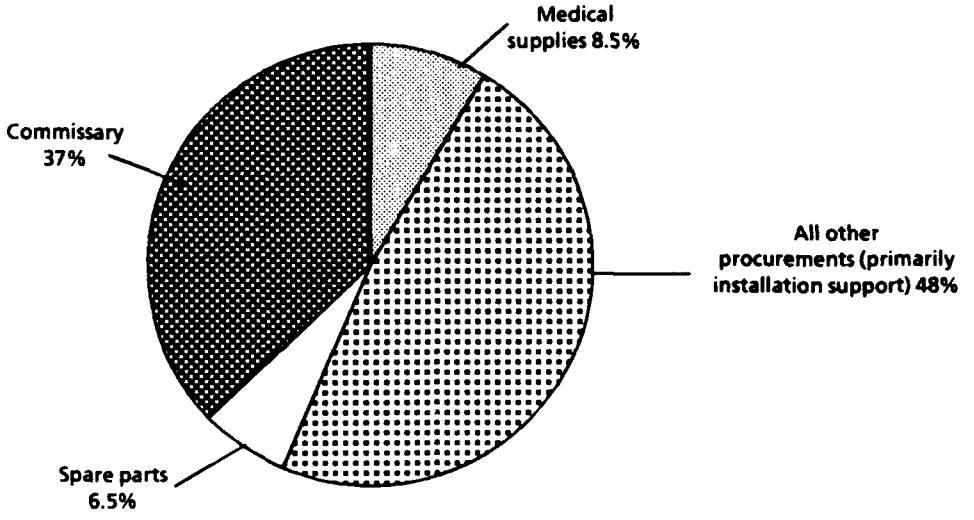

FIG. 4-1. DISTRIBUTION OF FUTURE DoD PROCUREMENT ACTIONS

With DLA consolidating procurement information processing at one SAMMS site and the Air Force planning to process all base-level contracting actions at four computer centers, this will further ease DoD's transition toward replacing its paper processes with electronic equivalents.

We believe that these consolidation initiatives will also lead to DoD using alternative distribution techniques such as direct vendor delivery and just-in-time inventory. With these techniques, hospitals, for example, will no longer maintain high stock levels because procurement will be shortened substantially. Hospital requirements will be electronically passed to DPSC for consolidated buys from contracts that permit EDI ordering, with delivery directly to a hospital's supply department, bypassing a DoD depot. The long-term effect will be smaller inventories at the depots and hospitals, which will lower inventory holding costs and reduce inventory spoilage costs. Instead of ordering biweekly, monthly, or quarterly, hospitals may order daily or weekly. These practices may increase the order transaction activity for some items by threefold.[2]

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[2]See Department of Defense *Inventory Management Plan*, "Inventory Reduction Plan," May 1990, which encourages procuring activities to use smaller order quantities as a means of curtailing inventory growth.

SUMMARY

Through a series of restructuring initiatives, the DoD is centralizing its procurement, contract administration, and contract payment functions at substantially fewer activities. It also is consolidating the automated processing of the business transactions supporting those functions at national or regional computer centers. The long-term impact of these initiatives is that they will ease greatly DoD's transition from a paper-based procurement system to one that transfers all types of procurement information electronically among DoD activities and their commercial vendors. In the next chapter, we examine which types of DoD activities present the greatest opportunity for processing procurement information electronically.

CHAPTER 5

EDI OPPORTUNITY ANALYSIS

INTRODUCTION

Electronic data interchange opportunities in Defense procurement exist at contracting activities with the following characteristics:

- *Document volume* – They process a large volume of procurement and contract administration documents.
- *Suitable documents* – Most of the documents processed are suitable for EDI translation; i.e., all the information that needs to be conveyed in the document can be mapped to EDI transaction sets.
- *Trading partners* – They exchange procurement documents with a few major trading partners.
- *Automation* – All trading partners must be capable of generating and receiving procurement information electronically.

In this chapter, we categorize, using primarily the first two criteria, DoD's contracting activities as presenting major, medium, minimal, or limited opportunities for application of EDI techniques.

ACTIVITIES

One of the indirect benefits of DoD's consolidation initiatives is that two of the commodities subject to consolidation, commissary and medical supplies, are acquired from industries well versed in EDI. Consequently, many of DoD's commercial trading partners in those commodities are familiar with EDI transactions, agreements, and benefits.

We summarize our findings on the best procurement activities for application of EDI in Table 5-1. In that table, we consider activities that process more than 250,000 procurement actions annually to be excellent opportunities for EDI; activities that process between 60,000 and 250,000 actions present lesser opportunities; while activities that process fewer than 60,000 actions offer minimal opportunities.

TABLE 5-1

EDI OPPORTUNITY PROFILE OF DoD PROCUREMENT ACTIVITIES

Number of annual purchase orders	Type of contracting							
	Centralized				Installation support			Specialized
	Army	Navy	Air Force	DLA	Army	Navy	Air Force	DeCA
Major opportunity (more than 250,000 per year)	None	None	None	DPSC–Medical, PA (700,000) DCSC, OH (260,000)	None	None	None	All DeCA regions (900,000 each)
Medium opportunity (60,000 – 250,000 per year)		None	None	DGSC, VA (233,000) DISC, PA (145,000) DESC, OH (119,000) DPSC–Subsistence, PA (101,000)	7th Comm. Group/Ft. Ritchie, MD (104,000) U.S. Army-Korea (80,000) Ft. Stewart, GA (61,000) Ft. Hood, TX (61,000)	NSC Norfolk, VA (94,000) NSC Charleston, SC (82,000) NSC Puget Sound, WA (65,000)	WPCC, OH (169,000) AFDTC Eglin AFB, FL (155,000) AFDW–Andrews AFB, MD (92,000) USAFA, CO (61,000)	None
Minimal opportunity (less than 60,000 per year)	TACOM, MI (10,000) MICOM, AL (9,000) AMCCOM, IL (9,000)	SPCC, PA (47,000) ASO, PA (34,000)	OCALC, OK (16,000) SAALC, TX (18,000) WRALC, GA (15,000)	DPSC–Clothing and textiles, PA (7,000)	Ft. Sill, OK (55,000) Ft. Bragg, NC (44,000)	NSC Jacksonville, FL (34,000) ASO, PA (34,000)	RAF Upper Heyford, UK (54,000) Hill AFB, UT (47,000)	None

Note: DPSC = Defense Personnel Support Center; DCSC = Defense Construction Supply Center; DGSC = Defense General Supply Center; NSC = Naval Supply Center; WPCC = Wright-Patterson Contracting Center; DISC = Defense Industrial Supply Center; AFDTC = Air Force Development Test Center; AFB = Air Force Base; DESC = Defense Electronic Supply Center; AFDW = Air Force District Washington; USAFA = U.S. Air Force Academy; TACOM = Tank-Automotive Command; SPCC = Ships Parts Control Center; OCALC = Oklahoma City Air Logistics Center; RAF = Royal Air Force; MICOM = Missile Command; ASO = Aviation Supply Office; SAALC = San Antonio Air Logistics Center; AMCCOM = Armament, Munitions and Chemical Command; WRALC = Warner-Robins Air Logistics Center.

Major Opportunities

According to Table 5-1, DeCA and DLA clearly have the greatest potential for applying EDI to their procurement of medical, construction and related products, and commissary supplies. (See Appendix A for more details on our ranking of DoD by the number of procurement actions.) The six DeCA regional activities will, according to DeCA estimates, issue approximately 5.5 million procurement actions annually.

Upon completion of the medical consolidation, DPSC is expected to issue nearly 700,000 medical supply purchases annually.[1] Both DeCA and DPSC (medical) volumes may be understated because they do not include any additional procurement actions stemming from increased ordering in support of direct vendor deliveries and just-in-time inventory techniques.

Medium Opportunities

The second tier of EDI procurement opportunities consists of DLA centers – DPSC (subsistence), DGSC, DISC, and DESC – each with annual volumes ranging from 100,000 to 250,000 actions. These centers acquire only supply items (no service contracting) primarily along Federal Supply Class lines, which translates into close industry relationships. Table 5-2 shows just a few of the industries from which the centers make substantial purchases each year. The number of procurement actions initiated each year by these centers will increase even more when DoD completes the transfer of management responsibility for approximately 817,000 consumable items from the Military Services to DLA. Ultimately, DLA will manage over 75 percent of all DoD items in the Federal Supply Catalog.

TABLE 5-2

EDI OPPORTUNITIES BY INDUSTRY

Activity	FSG	Title	Industry
DCSC	25	Vehicular components	Automotive
DESC	59	Electronic components	Electronic
DISC	28, 29	Aircraft engine components	Aerospace
DGSC	67	Photographic equipment and supplies	Photographic, chemical

Note: FSG = Federal Supply Group.

We also see a substantial opportunity for EDI at several regional contracting activities, such as Wright-Patterson Contracting Center (WPCC), and major bases, such as Naval Supply Center (NSC) Norfolk, Virginia; NSC Charleston, South

[1]The Medical CIM Logistics Team estimates that 600,000 medical supply procurement actions will no longer be procured locally but passed to DPSC's Medical Directorate and added to its current 90,000 actions.

Carolina; and Andrews AFB, Maryland. When procurement volumes fall below 60,000 actions per year, the potential benefits of using EDI decrease dramatically.

Minimal Opportunities

The remaining opportunities for using EDI in Defense procurement exist at a number of medium-sized bases, regional contracting centers, and Military Service ICPs, with moderate transaction volumes (40,000 to 60,000 actions per year or roughly 160 to 240 transactions per business day). (See Table 5-1.)

Some Military Service ICPs also can make good use of EDI even though they issue as few as 10,000 procurement transactions per year. They have the advantage of acquiring supply items from relatively few suppliers in specific industries. For example, the Tank-Automotive Command (TACOM) manages automotive components that it procures from either original manufacturers or a limited number of after-market suppliers. To satisfy its recurring requirements, TACOM (or other ICPs) could establish requirement contracts that permit electronic orders. Such contracts would be particularly useful in meeting provisioning requirements, where TACOM acquires initial spare parts from the system or subsystem manufacturer for several years through issuance of Provisioned Item Orders. We believe that these orders are an EDI opportunity because of the high number of transactions with only one trading partner.

At some ICPs, the nature of the weapon system and its advanced technology limit procurement of spare parts to the original supplier or a few qualified manufacturers. We found in an earlier study that 82 percent of the items procured at the San Antonio Air Logistics Center were either sole source or limited source under qualified products list, engineering source approval, or manufacturing source approval restrictions.[2] As was noted in Chapter 2, ASO estimates that 45 percent of its nearly 34,000 procurement actions are placed with only 15 contractors.

Limited Opportunities

We do not list, either in Table 5-1 or Appendix A, hundreds of DoD activities that issue only a few procurement actions each year. The small number of

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[2]LMI Report PL006R1, *Electronic Commerce and Competitive Procurement*, Appendix D, Daniel J. Drake and John A. Ciucci, June 1991.

transactions makes use of EDI impractical; also, many of the transactions issued are not suitable for EDI.

To illustrate this situation more clearly, Figure 5-1 shows a typical procurement profile for a DoD activity that does not support either a commissary or a hospital, but does have a sizable military housing construction and maintenance workload. Approximately 46 percent of this activity's procurement actions are either for services or construction, neither of which offers much promise for EDI. The remainder, approximately 9,000 transactions or 36 per business day, could be executed using EDI techniques except that many of the vendors, typically small businesses dealing primarily in their local trading area, would be unfamiliar with EDI.

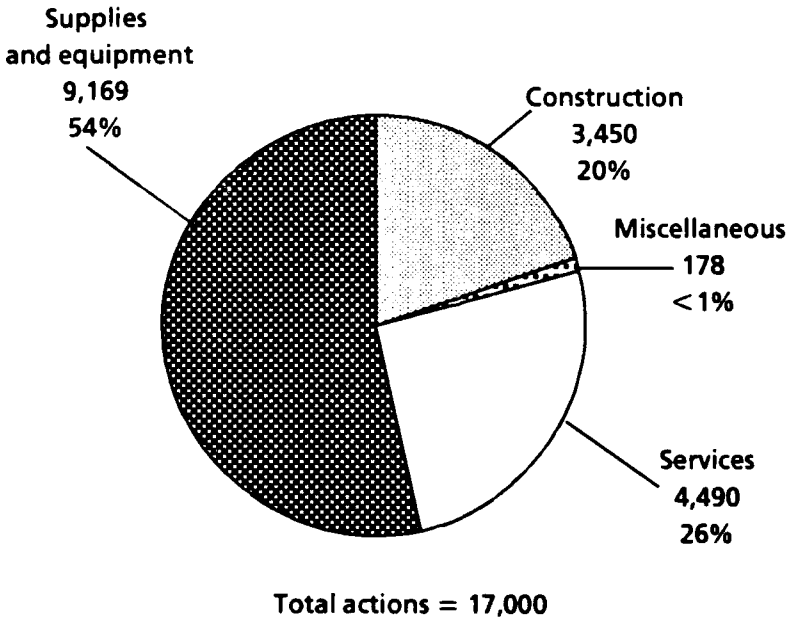

FIG. 5-1. TYPICAL INSTALLATION SUPPORT PROCUREMENT PROFILE (FY90 data)

DELIVERY ORDERS

In a previous study, we noted that the opportunities for using EDI in large-dollar value (greater than $25,000) procurement actions were limited except when delivery orders or other ordering instruments constituted a large percentage of all

procurement actions.[3] We previously noted in Table 3-4 of this report that approximately 28 percent of all FY90 DoD procurement actions were delivery orders. Yet, at several high-volume procurement activities, the percentage of small-dollar delivery orders is nearly 70 percent (see Table 5-3). These differences in the reporting of delivery orders among the Military Services and procuring activities lead one to question the differences in procurement management throughout DoD. Some activities appear to issue large numbers of delivery orders because they consolidate repetitive requirements into annual or multiyear indefinite delivery/quantity contract solicitations that provide for direct ordering to meet individual requirements. Other activities continue to process each purchase request as a separate small purchase action without attempting to streamline the process.

TABLE 5-3

DELIVERY ORDERS AS A PERCENTAGE OF TOTAL PROCUREMENT ACTIONS (FY90)

Activity	Total actions	Delivery orders	Percentage
WPCC, Wright-Patterson AFB, OH	169,447	118,369	70
AFDTC, Eglin AFB, FL	154,613	114,073	74
Davis Monthan AFB, AZ	76,313	54,491	71
TSA Fort Lee, VA	335,293	231,352	69

Note: TSA = Troop Support Agency (Southeast Region).

The percentages shown in Table 5-3 further substantiate that the DoD should launch its EDI procurement initiatives at those activities with the necessary volume to justify the investments.

SUMMARY

In this chapter, we identify several DoD buying activities that annually issue a large number of procurement actions to industries that routinely use EDI techniques in their day-to-day operations. We also identify other DoD buying activities that

[3]Ibid.

apparently issue a sufficient number of procurement actions to warrant a detailed assessment of their EDI potential.

In the following chapter, we examine the economic implications of implementing EDI at DoD's largest buying activities.

CHAPTER 6

ECONOMIC ANALYSIS

This chapter provides our estimates of the economic consequences of DoD implementing EDI at its largest procurement activities. We estimate both the direct cost savings from using EDI and the indirect cost savings made possible by EDI through changes in business practices. We conclude with estimates of the investment and operating costs required to achieve these savings.

COST SAVINGS

We estimate that DoD could save more than $168 million over a 10-year period (the expected project life cycle) by implementing EDI to reduce paper handling costs at its 38 largest volume buying activities and associated accounting, receiving, and payment offices.

We further estimate that DoD could reap an additional $210 million of indirect cost savings per year from lower small-purchase prices and price reductions from more economic, larger buys, all stemming from the use of EDI ordering techniques. An additional one-time savings of $24.3 million in safety-level inventory is possible from reduced administrative leadtimes.

We believe that implementation of EDI at small-volume activities, engaged primarily in base or installation support contracting with less than 40,000 actions per year, may not be cost-effective, particularly if those activities require the services of a dedicated EDI system or trading partner administrator. The savings from eliminating procurement paperwork will not offset the cost of a new position dedicated to EDI management.

Direct Cost Savings

The DoD can justify implementing EDI at its 38 largest buying activities solely on direct cost savings of $168 million. We estimate that six DeCA regions and six DLA supply centers will generate approximately 87 percent of the savings, or about $145 million. Table 6-1 shows the number of procurement actions issued by each

activity and the projected 10-year savings in direct costs. Appendix B provides the factors used to calculate those savings.

TABLE 6-1

DIRECT SAVINGS – DOMESTIC BUYING ACTIVITIES

Ranking	Activity	Approximate volume (000)	Estimated 10-year savings ($000)
1	DeCA Region – 1	900	17,969
2	DeCA Region – 2	900	17,969
3	DeCA Region – 3	900	17,969
4	DeCA Region – 4	900	17,969
5	DeCA Region – 5	900	17,969
6	DeCA Region – 6	900	17,969
7	DPSC – Medical, Philadelphia, PA	700	19,566
8	DCSC, Columbus, OH	257	5,380
9	DGSC, Richmond, VA	230	5,677
10	WPCC, Dayton, OH	169	2,945
11	AFDTC, Eglin AFB, FL	155	2,701
12	DISC, Philadelphia, PA	144	3,372
13	DESC, Dayton, OH	117	2,145
14	7th Communications Group, Ft. Ritchie, MD	104	1,812
15	DPSC – Subsistence, Philadelphia, PA	93	1,857
16	AFDW, Andrews AFB, MD	92	1,603
17	NSC Norfolk, VA	92	1,019
18	NSC Charleston, SC	81	897
19	Davis Monthan AFB, AZ	76	1,324
20	Nellis AFB, NV	68	753
21	NSC Puget Sound, WA	65	720
22	Fort Hood, TX	61	675
23	USAF Academy, CO	61	1,063
24	Fort Stewart, GA	61	620
25	Fort Sill, OK	55	559
26	Tinker AFB, OK	50	508
27	Grand Forks AFB, ND	47	478
28	Hill AFB, UT	47	478
29	Fort Bragg, NC	44	447
30	Fort Knox, KY	44	447
31	Barksdale AFB, LA	44	447
32	Holloman AFB, NM	44	447
33	Fort Lewis, WA	43	437
34	Fort Leavenworth, KS	42	427
35	SPCC, Mechanicsburg, PA	42	701
36	MacDill AFB, FL	42	427
37	Fort Shafter, HI	40	407
38	Hurlburt Field, FL	40	407
Total		8,650	168,000

Note: Savings total will not add due to rounding.

In developing our paper handling savings, we follow the methodology described in our September 1990 report, *A Business Case for Electronic Commerce* [hereafter referred to as the Business Case], which estimated the direct cost savings from replacing common DoD documents with EDI transactions. That methodology uses engineered work standards supplied by the U.S. Army Finance and Accounting Center (now DFAS – Indianapolis Center) to detail the labor content and time allotment for performing manual document distribution, mailing, comparison, data entry, error resolution, and storage and retrieval. Because most of those manual operations would be eliminated in a totally EDI environment, we define the associated savings as direct cost savings.

In our calculations, we use DD Form 1155, Order for Supplies and Services, as the "average" procurement document because it is the most commonly used procurement form in DoD.[1] The DD Form 1155, which is a multipurpose form, serves as an order, a receiving document, and an invoice. Consequently, our direct cost savings reflect not only the paper handling labor eliminated in the buying office, but also those labor costs eliminated in accounting and finance, receiving, and payment offices. We found that buying offices contribute only 12 percent of the labor cost savings when the DD Form 1155 is replaced by an EDI transaction. This situation arises because buying offices only distribute and mail the procurement document while other offices receive and process the document, enter extracted data into their automated systems, correct data-entry errors, and store the document.

To arrive at the direct savings per document, the work standards were multiplied by the appropriate General Schedule (GS) labor rate to obtain the savings associated with eliminating specific processing steps. In the Business Case, the direct cost savings calculated for the DD Form 1155 were $3.35 per document in 1990 dollars, which we adjusted by 4.1 and 4.2 percent (the pay increase effective 1 January 1991 and 1 January 1992, respectively) to arrive at $3.63 per document in 1992 dollars.

When applying the per-document savings, we deviate from the Business Case methodology by assuming that not all procurement activities are equal candidates for

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[1]Orders need not be paper documents as telephone orders or "calls" are issued orally and documented by handwritten notation on the purchase request or requisition. See FAR 13.204, Purchases under Blanket Purchase Agreements. Considerable manual labor is required to telephone and make notations on paper documents.

implementing EDI. Specifically, we assume that some buying activities will achieve higher implementation rates than others because they buy from EDI-capable trading partners and the items they buy can be more easily described in an EDI transaction. Table 6-2 groups DoD's buying activities by EDI characteristics, assigns implementation rates, and provides the rationale for those rates.

TABLE 6-2

EDI IMPLEMENTATION RATES

Type of procurement activity	Maximum implementation rate (%)	Rationale
DeCA regions	85	High supply order volume, grocery industry is highly automated and major EDI user, extensive use of ordering arrangements
DPSC (Medical)	85	High supply order volume, medical supply industry is highly automated and major EDI user, extensive use of ordering arrangements
DLA supply centers, Military Service ICPs	70–80	High- to medium-supply order volume, industries have some EDI capability, narrow supplier base
Regional contracting centers, large bases	50–75	Medium supply order volume, some ordering arrangements, broad, diverse, and less automated supplier base
Small bases	30–40	Low supply order volume, many small and less automated trading partners
Research and development centers	15–25	Few supply orders, large number of service contracts

We then applied the EDI implementation rates (see Table B-2 of Appendix B) over the 10-year project life for the top 38 domestic buying activities to arrive at the $166 million savings (see Table B-1 of Appendix B). For all other DoD procurement activities, we assume a maximum 40 percent implementation rate, which would yield total savings of only $66 million.

Indirect Cost Savings

In this section, we address the indirect cost savings from applying EDI to procurement. We estimate that the DoD will achieve indirect cost savings totaling

$210 million from implementing EDI at its largest procurement activities. Those savings should arise from one primary source: lower prices (see Table 6-3).

TABLE 6-3

INDIRECT SAVINGS

Savings source	Annual savings ($)
Lower small-purchase prices from improved competition	140.0 million
Lower unit prices from economies of scale	70.0 million

Competitive Small Purchase Price Savings

We believe that DoD could save at least $140 million per year in the cost of small-purchase items through EDI. These savings should come primarily from improved competitive procedures, especially when applied to the less than $2,500 solicitations that are now conducted via telephone to only a few local vendors. Electronic Commerce techniques, such as electronic bulletin boards or EDI networks, can disseminate solicitations to either all potential vendors or a select few. They also can do it faster and more equitably than current manual procedures.

At NSC Jacksonville, for example, the Navy reports savings of approximately 8 percent through the EASE project on price-volatile commodities such as food. Even if EDI resulted in a 2 percent reduction in prices, which is very conservative based upon the Navy's experience, the DoD would still save $140 million per year, assuming that it acquires $7 billion in goods and services through small purchase procedures annually.

Economies of Scale

Additional savings are possible when DoD activities order directly from manufacturers or major distributors under indefinite delivery/quantity contracts instead of issuing individual solicitations and orders for small quantities to local distributors. Instead of pricing each individual demand separately, the price could be established from a large volume requirement of over a year or more resulting in lower unit prices. Although EDI merely facilitates order transmission in a simple

application, it also could be used to automate the exchange of price catalog, price change, and volume discount information.

To illustrate the potential, DPSC's Medical Directorate recently compared the prices it paid for 27 common medical supply items using small purchase requests for quotations with what it would have paid if it placed an EDI order directly with the manufacturer or major distributor. We estimate that DPSC paid almost 116 percent more for those 27 items than if it had purchased them using large-volume indefinite delivery or requirements contracts through the SPEDE system.

These savings arise from better prices obtained when large-volume solicitations are used to competitively establish indefinite delivery contracts or, in the case of sole source items, when large-quantity purchases are negotiated for delivery over the life of the contract. If DoD could achieve a 1 percent savings on the $7 billion in goods and services that it acquires annually under small purchase procedures by establishing (or making available information on existing) indefinite delivery contracts, it would save an additional $70 million per year. We use a conservative 1 percent savings rate because many items purchased locally may not justify use of indefinite delivery contracts.

Other Sources of Indirect Savings

We also believe that the use of EDI in procurement can result in inventory savings, but those savings are more accurately attributed to changes in supply and distribution practices that are made possible by EDI. They are also nearly impossible to estimate on a DoD-wide basis because they are dependent upon local practices and supported commodities.

In this section, we briefly examine two areas in which DoD may reduce its investments in inventory, but we do not provide any firm estimates of the potential in either area.

Inventories

The DoD has already demonstrated that EDI, when combined with just-in-time and direct-vendor-delivery techniques, can lead to substantial reductions in inventories.

At DGSC, DLA, through use of POPS, has achieved savings of $30 million over the project's first 4 years.[2] Those savings consist of a one-time reduction in inventories assets plus recurring savings in stock spoilage cost avoidance for items such as batteries, chemicals, and photographic film. Further, DPSC's Medical Directorate estimates that it will reduce a $560 million inventory by 60 percent through a combination of EDI, just-in-time, and direct-vendor techniques.

Similar savings are possible in the Military Services. For example, the Air Force maintains a substantial inventory of spare parts for the F-108 (the military designation of the widely used CFM-56 jet engine), while the U.S. airlines have only minimal stocks because they use the Air Transportation Association's Airline Inventory Redistribution System and SPEC 2000 electronic ordering system.[3] The Air Force also could use those same commercial distribution channels to support their engines, and in so doing, reduce its investment in inventory.

Safety Stocks

Since EDI establishes a closer linkage between the DoD and its suppliers, any reduction in the time that procurement documents are in transit to the contractor should lead to a corresponding reduction in procurement administrative lead time (PALT), which translates directly into lower safety stocks.

According to a recent RAND report, DGSC reduced its PALT through POPS from 18 days to 13 days, while DPSC, through use of the SPEDE system, reduced PALT from 14 days to 8 days.[4] If DoD could achieve an overall PALT reduction of 5.5 days for all items in inventory (a risky assumption), then it could obtain a one-time savings of $24.3 million.

INVESTMENT COSTS

We estimate that for the DoD to achieve direct cost savings of $166 million over 10 years, 38 of its largest buying activities will need to invest between $11 million to

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[2]See DoD Inspector General Audit Report No. 87-188, *Report on Audit of Electronic Contract Ordering*, 10 July 1987.

[3]See LMI Report PL904R1, *Electronic Data Interchange in Procurement*, Daniel J. Drake, John A. Ciucci, and Ben Milbrandt, April 1990; The RAND Corporation Report R-4030-P&L, *Electronic Data Interchange: Using Electronic Commerce to Enhance Defense Logistics*, Judith E. Payne and Robert H. Anderson, 1991.

[4]RAND Report R-4030-P&L.

$16 million. How these estimates were derived is discussed below. The cost categories associated with such an investment are identified in Table 6-4.

TABLE 6-4

EDI INVESTMENT COST CATEGORIES

Cost category
Hardware
Computer
WORM
Software
EDI translator
WORM record manager
Communications
Systems integration
Interface programming
Application enhancements
Program management
Promotion/coordination
Internal operating procedures
Trading partner development
Implementation support
Planning and coordination
Standards development
Implementation guidelines
Training
Trading partner expansion

Note: WORM = write once, read many.

Hardware

We assume that all activities will use, depending on transaction volume, either a front-end microcomputer or a minicomputer to host the EDI translation software. Prices will range from approximately $5,000 for microcomputer hardware to approximately $30,000 for minicomputer hardware.

We also assume that all activities will need optical disk storage equipment linked to the EDI host computer for procurement document and transaction storage.

We believe that "write once, read many" (WORM) optical disk storage of all transactions is necessary to satisfy legal and audit concerns. WORM hardware will cost approximately $25,000 per site.

In total, hardware costs will range from $1 million to $2 million.

Software

Each EDI activity will need an EDI translation software package. The average costs will range from $5,000 for microcomputer translators to $25,000 for minicomputer applications.[5]

Software is also required for managing the indexing, storage and retrieval of procurement documents, and EDI transactions stored in the WORM hardware. We estimate that such software will cost each activity approximately $5,000.

Software costs for both EDI translation and WORM storage will likely approach $1 million.

Systems Integration

Systems integration costs incorporate the cost of interface programming and the cost of application system enhancements. Interface programming formats data from the EDI translator into flat-file records for processing by the activity's procurement, receiving, accounting, and payment application systems. Those systems, in turn, often need to be modified to use the EDI information. These application system enhancements permit the buying and supporting activities to take full advantage of the direct and indirect benefits offered by EDI. Each activity will also need to integrate the optical disk storage system into the automated procurement system and EDI translator.

As a rule of thumb, we tend to reserve anywhere from one-third to one-half of total implementation costs for system integration. Extensive system analysis and computer programming will be required to integrate EDI into the various automated procurement systems. Each unique automated procurement system (e.g., the Navy's Automation of Procurement and Accounting Data Entry, the Air Force's Base Contracting Automated System, and the Army's Standard Army Automated

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[5]See LMI Report PL005R1, *A Guide to EDI Translation Software, 1991 Edition*, Harold L. Frohman.

Contracting System) will require development of unique interface and application enhancement programs. Our experience at the two DFAS activities indicate these costs will range from approximately $500,000 per system to as much as $1.5 million per system, depending on the level of automation and the changes required. Since the top 38 activities use six different automated procurement systems of varying capabilities, we estimate an investment of $5 million to $7 million will be required for just the system integration cost component.

Program Management and Implementation Support

We believe the most important, and probably the most overlooked, aspect of applying EDI is not the technology but its implementation. It requires a dedicated project team for at least 2 years that is prepared to acquire hardware and software, develop standards, test transactions, develop internal operating procedures, train personnel, conduct site surveys, and develop training partners. Next to system integration, it is the second most expensive cost component. We estimate that program management and implementation costs at the 38 activities will range between $4 million and $6 million.

SUMMARY

With an investment of between $11 million and $16 million, we estimate that DoD will reap direct savings in excess of $168 million over a 10-year period by implementing EDI at its 38 largest buying activities. Additional savings are possible through changes in business methods that EDI readily accommodates. We recommend that the DoD Executive Agent for Electronic Commerce and Electronic Data Interchange initiate EDI implementation at the largest procurement activities identified in this report and then move to the smaller activities as workload and business practices justify.

Although this report estimates the anticipated costs and savings if DoD procurement implements EDI at its 38 largest activities, it does not provide sufficient detail to support individual activity implementation decisions. More refined savings and cost estimates can only be obtained by examining specific procurement activities. Therefore, we recommend that the Executive Agent conduct functional economic analyses (FEAs) at a selection of procurement activities that best represent DoD's various contracting environments. This analysis will validate projected savings,

assess each activity's procurement automation capabilities, provide trading partner capability profiles, and permit detailed estimates of investment costs.

APPENDIX A

DoD'S LARGEST PROCUREMENT ACTIVITIES

This appendix presents our estimate of the 50 largest procurement activities in the Department of Defense (DoD) (see Table A-1). In developing that estimate, we used the actual number of Fiscal Year 1990 procurement actions adjusted for changes in base structure and consolidations. For example, we did not include in our list Fort Dix, New Jersey, with 49,000 actions; Bergstrom Air Force Base (AFB), Texas, with 37,000 actions; and Grissom AFB, Indiana, with 37,000 actions because they are scheduled for closure in the *Defense Base Closure and Realignment Commission Report to the President 1991* by the Defense Base Closure and Realignment Commission. Also, prior to establishment of the Defense Commissary Agency (DeCA), Maxwell AFB, Alabama; March AFB, California; Langley AFB, Virginia; Lackland AFB, Texas; Norton AFB, California; Offutt AFB, Nebraska; and Luke AFB, Arizona, executed procurement actions for Air Force Commissary Regions. Without those procurements, these bases are no longer among DoD's largest procurement activities. The four U.S. Army Troop Support Activity regions are eliminated for the same reason.

TABLE A-1

DoD'S 50 LARGEST PROCUREMENT ACTIVITIES

Rank	Activity/location	Estimated number	Type of procurement
1	DeCA Region – 1	900,000	Commissary supply
2	DeCA Region – 2	900,000	Commissary supply
3	DeCA Region – 3	900,000	Commissary supply
4	DeCA Region – 4	900,000	Commissary supply
5	DeCA Region – 5	900,000	Commissary supply
6	DeCA Region – 6	900,000	Commissary supply
7	DPSC – Medical, Philadelphia, PA	700,000	Central supply
8	DCSC, Columbus, OH	257,000	Central supply
9	DGSC, Richmond, VA	230,000	Central supply
10	Wright-Patterson Contracting Center, Dayton, OH	169,000	Regional/installation support

Note: DPSC=Defense Personnel Support Center; DCSC=Defense Construction Supply Center; DGSC=Defense General Supply Center; DISC=Defense Industrial Supply Center; DESC= Defense Electronic Supply Center; ADPE=automatic data processing equipment, NSC=Naval Supply Center; USAF=U.S. Air Force; RAF=Royal Air Force; SPCC= Ships Parts Control Center.

TABLE A-1

DoD'S 50 LARGEST PROCUREMENT ACTIVITIES (Continued)

Rank	Activity/location	Estimated number	Type of procurement
11	Air Force Development Test Center, Eglin AFB, FL	155,000	Test range/ installation support
12	DISC, Philadelphia, PA	144,000	Central supply
13	DESC, Dayton, OH	117,000	Central supply
14	7th Communications Group, Fort Ritchie, MD	104,000	Telecommunications/installation support
15	DPSC – Subsistence, Philadelphia, PA	93,000	Central supply
16	Air Force District Washington – Andrews AFB, MD	92,000	ADPE/regional/installation support
17	NSC Norfolk, VA	92,000	Regional/installation support
18	NSC Charleston, SC	81,000	Regional/installation support
19	U.S. Army Contracting Activity, Korea	80,000	Regional/installation support
20	Davis Monthan AFB, AZ	76,000	Installation support
21	313th Air Division, Japan	73,000	Regional/installation support
22	Nellis AFB, NV	68,000	Installation support
23	NSC Puget Sound, WA	65,000	Regional/installation support
24	Fort Hood, TX	61,000	Installation support
25	USAF Academy, CO	61,000	Installation support
26	Fort Stewart, GA	61,000	Installation support
27	Rhine Ordnance Depot, Germany	58,000	Installation support
28	475th Air Base Wing Contracting Center, Japan	55,000	Installation support
29	Fort Sill, OK	55,000	Installation support
30	Iraklion Air Base, Greece	50,000	Installation support
31	Tinker AFB, OK	50,000	Installation support
32	RAF Lakenheath, UK	48,000	Installation support
33	Grand Forks AFB, ND	47,000	Installation support
34	Hill AFB, UT	47,000	Installation support
35	Fort Bragg, NC	44,000	Installation support
36	Fort Knox, KY	44,000	Installation support
37	Barksdale AFB, LA	44,000	Installation support
38	Holloman AFB, NM	44,000	Installation support
39	Fort Lewis, WA	43,000	Installation support
40	Fort Leavenworth, KS	42,000	Installation support
41	SPCC, Mechanicsburg, PA	42,000	Central supply
42	MacDill AFB, FL	42,000	Installation support
43	Fort Shafter, HI	40,000	Installation support
44	Hurlburt Field, FL	40,000	Installation support
45	Keesler AFB, MS	37,000	Installation support
46	McClellan AFB, CA	37,000	Installation support
47	Hickam AFB, HI	36,000	Installation support
48	Patrick AFB, FL	36,000	Installation support
49	Naval Surface Weapons Center, Dahlgren, VA	36,000	R&D/installation support
50	Mountain Home AFB, ID	36,000	Installation support

Note: DPSC = Defense Personnel Support Center; DCSC = Defense Construction Supply Center; DGSC = Defense General Supply Center; DISC = Defense Industrial Supply Center; DESC = Defense Electronic Supply Center; ADPE = automatic data processing equipment; NSC = Naval Supply Center; USAF = U.S. Air Force; RAF = Royal Air Force; SPCC = Ships Parts Control Center

APPENDIX B

ESTIMATE OF EDI DIRECT SAVINGS

This appendix presents some of the data used to estimate the annual direct savings from implementing electronic data interchange (EDI) at Department of Defense's (DoD's) largest procurement activities. It also provides the 10-year savings for each activity based on an implementation rate appropriate for the type of activity, its annual procurement volume, types of actions issued, and trading partner capabilities.

Although Appendix A identifies DoD's 50 largest procurement activities, we do not provide estimates for the overseas activities listed in that appendix because American National Standards Institute standards, upon which we base our investment costs, are for domestic use only. Only the top 38 buying activities are listed in this appendix because we believe EDI is not cost-effective at installation support contracting activities with fewer than 40,000 procurement actions per year.

Table B-1 shows the projected annual savings through Fiscal Year 2001 for each activity, while Table B-2 shows the rates at which we project each activity will implement EDI. Those rates are expressed as the percentage of annual procurement documents replaced by electronically exchanged information. Note that several Defense Logistics Agency (DLA) activities start with sizable implementation rates; those high rates stem from the success of DLA's past automation efforts.

We calculate the annual savings for each activity (Table B-1) by multiplying the annual number of procurement actions (from Table A-1) by the projected EDI implementation rate (Table B-2) and the resultant product by the costs savings per document ($3.63).

TABLE B-1

PROJECTED ANNUAL SAVINGS

($000)

Activity	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	Total
DeCA Region – 1	0	327	653	1,307	2,124	2,450	2,777	2,777	2,777	2,777	17,969
DeCA Region – 2	0	327	653	1,307	2,124	2,450	2,777	2,777	2,777	2,777	17,969
DeCA Region – 3	0	327	653	1,307	2,124	2,450	2,777	2,777	2,777	2,777	17,969
DeCA Region – 4	0	327	653	1,307	2,124	2,450	2,777	2,777	2,777	2,777	17,969
DeCA Region – 5	0	327	653	1,307	2,124	2,450	2,777	2,777	2,777	2,777	17,969
DeCA Region – 6	0	327	653	1,307	2,124	2,450	2,777	2,777	2,777	2,777	17,969
DPSC – Medical, Philadelphia, PA	1,398	1,652	1,779	1,906	2,033	2,160	2,160	2,160	2,160	2,160	19,568
DCSC, Columbus, OH	189	283	378	472	566	614	661	708	755	755	5,380
DGSC, Richmond, VA	333	418	501	543	584	626	668	668	668	668	5,677
WPCC, Dayton, OH	0	61	123	184	276	460	460	460	460	460	2,945
AFDTC, Eglin AFB, FL	0	56	113	169	253	422	422	422	422	422	2,701
DISC, Philadelphia, PA	183	235	288	314	340	366	392	418	418	418	3,372
DESC, Dayton, OH	85	127	170	191	212	234	255	276	297	297	2,144
7th Comm. Group, Fort Ritchie, MD	0	38	94	151	189	227	264	283	283	283	1,812
DPSC – Subsistence, Philadelphia, PA	34	84	135	202	219	236	236	236	236	236	1,854
AFDW, Andrews AFB, MD	0	33	84	134	167	222	234	251	251	251	1,603
NSC Norfolk, VA	0	33	67	84	100	117	134	150	167	167	1,019
NSC Charleston, SC	0	29	59	74	88	103	118	132	147	147	897
Davis Monthan AFB, AZ	0	28	55	83	124	207	207	207	207	207	1,324
Nellis AFB, NV	0	25	49	62	74	86	98	111	123	123	753
NSC Puget Sound, WA	0	24	47	60	71	83	94	106	118	118	720
Fort Hood, TX	0	22	44	55	66	78	89	100	111	111	675
USAF Academy, CO	0	22	44	66	100	166	166	166	166	166	1,063
Fort Stewart, GA	0	22	44	55	66	78	89	89	89	89	620
Fort Sill, OK	0	20	40	50	60	70	80	80	80	80	559
Tinker AFB, OK	0	18	36	45	54	64	73	73	73	73	508
Grand Forks AFB, ND	0	17	34	43	51	60	68	68	68	68	478
Hill AFB, UT	0	17	34	43	51	60	68	68	68	68	478
Fort Bragg, NC	0	16	32	40	48	56	64	64	64	64	447
Fort Knox, KY	0	16	32	40	48	56	64	64	64	64	447
Barksdale AFB, LA	0	16	32	40	48	56	64	64	64	64	447
Holloman AFB, NM	0	16	32	40	48	56	64	64	64	64	447
Fort Lewis, WA	0	16	31	39	47	55	62	62	62	62	437
Fort Leavenworth, KS	0	15	31	38	46	53	61	61	61	61	427
SPCC, Mechanicsburg, PA	0	15	38	61	76	92	99	107	107	107	701
MacDill AFB, FL	0	15	31	38	46	53	61	61	61	61	427
Fort Shafter, HI	0	15	29	36	44	51	58	58	58	58	407
Hurlburt Field, FL	0	15	29	36	44	51	58	58	58	58	407

Notes: Totals will not add due to rounding. DeCA = Defense Commissary Agency; DPSC = Defense Personnel Support Center; DCSC = Defense Construction Supply Center; DGSC = Defense General Supply Center; WPCC = Wright-Patterson Contracting Center; AFDTC = Air Force Development Test Center; AFB = Air Force Base; DISC = Defense Industrial Supply Center; DESC = Defense Electronic Supply Center; AFDW = Air Force District Washington; NSC = Naval Supply Center; USAF = U.S. Air Force; SPCC = Ships Parts Control Center.

TABLE B-2

PROJECTED EDI IMPLEMENTATION RATE

(Percentage of documents)

Activity	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
DeCA Region – 1	0	10	20	40	65	75	85	85	85	85
DeCA Region – 2	0	10	20	40	65	75	85	85	85	85
DeCA Region – 3	0	10	20	40	65	75	85	85	85	85
DeCA Region – 4	0	10	20	40	65	75	85	85	85	85
DeCA Region – 5	0	10	20	40	65	75	85	85	85	85
DeCA Region – 6	0	10	20	40	65	75	85	85	85	85
DPSC – Medical, Philadelphia, PA	55	65	70	75	80	85	85	85	85	85
DCSC, Columbus, OH	20	30	40	50	50	65	70	75	80	80
DGSC, Richmond, VA	40	50	60	65	70	75	80	80	80	80
WPCC, Dayton, OH	0	10	25	40	50	60	70	75	75	75
AFDTC, Eglin AFB, FL	0	10	25	40	50	60	70	75	75	75
DISC, Philadelphia, PA	35	45	55	60	65	70	75	80	80	80
DESC, Dayton, OH	20	30	40	45	50	55	60	65	70	70
7th Comm. Group, Fort Ritchie, MD	0	10	25	40	50	60	70	75	75	75
DPSC – Subsistence, Philadelphia, PA	10	25	40	50	65	70	70	70	70	70
AFDW, Andrews AFB, MD	0	10	25	40	50	60	65	70	75	75
NSC Norfolk, VA	0	10	20	25	30	35	40	45	50	50
NSC Charleston, SC	0	10	20	25	30	35	40	45	50	50
Davis Monthan AFB, AZ	0	10	25	40	50	60	70	75	75	75
Nellis AFB, NV	0	10	20	25	30	35	40	45	50	50
NSC Puget Sound, WA	0	10	20	25	30	35	40	45	50	50
Fort Hood, TX	0	10	20	25	30	35	40	45	50	50
USAF Academy, CO	0	10	25	40	50	60	70	75	75	75
Fort Stewart, GA	0	10	20	25	30	35	40	40	40	40
Fort Sill, OK	0	10	20	25	30	35	40	40	40	40
Tinker AFB, OK	0	10	20	25	30	35	40	40	40	40
Grand Forks AFB, ND	0	10	20	25	30	35	40	40	40	40
Hill AFB, UT	0	10	20	25	30	35	40	40	40	40
Fort Bragg, NC	0	10	20	25	30	35	40	40	40	40
Fort Knox, KY	0	10	20	25	30	35	40	40	40	40
Barksdale AFB, LA	0	10	20	25	30	35	40	40	40	40
Holloman AFB, NM	0	10	20	25	30	35	40	40	40	40
Fort Lewis, WA	0	10	20	25	30	35	40	40	40	40
Fort Leavenworth, KS	0	10	20	25	30	35	40	40	40	40
SPCC, Mechanicsburg, PA	0	10	25	40	50	60	65	70	70	70
MacDill AFB, FL	0	10	20	25	30	35	40	40	40	40
Fort Shafter, HI	0	10	20	25	30	35	40	40	40	40
Hurlburt Field, FL	0	10	20	25	30	35	40	40	40	40

Notes: DeCA = Defense Commissary Agency; DPSC = Defense Personnel Support Center; DCSC = Defense Construction Supply Center; DGSC = Defense General Supply Center; WPCC = Wright-Patterson Contracting Center; AFDTC = Air Force Development Test Center; AFB = Air Force Base; DISC = Defense Industrial Supply Center; DESC = Defense Electronic Supply Center; AFDW = Air Force District Washington; NSC = Naval Supply Center; USAF = U.S. Air Force; SPCC = Ships Parts Control Center.

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This report identifies the DoD buying activities with the greatest opportunity to benefit from electronic data interchange (EDI) techniques. A list of 38 buying activities (from DoD's 1,300 buying activities) and the expected direct cost savings from implementing EDI is provided. The assessment of EDI opportunities is based on a review of procurement action volume, estimated EDI implementation rates, and cost savings per document. Changes in DoD business volumes from functional and management consolidations were considered in developing the volume and savings estimates.

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